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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/685,057	10/14/2003	Bruce A. Bishop	647P004	5715
42754	7590	05/10/2006	EXAMINER	
NIELDS & LEMACK 176 EAST MAIN STREET, SUITE 7 WESTBORO, MA 01581			MENON, KRISHNAN S	
			ART UNIT	PAPER NUMBER
			1723	

DATE MAILED: 05/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/685,057	<b>Applicant(s)</b> BISHOP ET AL.	
	<b>Examiner</b> Krishnan S. Menon	<b>Art Unit</b> 1723	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 05 May 2006.
- 2a) ☒ This action is **FINAL**.      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1,2 and 4-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 4-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

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### DETAILED ACTION

Claims 1,2 and 4-12 are pending as amended 5/5/06

#### *Double Patenting*

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

(1) Claim 1 is provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 12 and 13 of copending Application No. 10/853,976. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of the '976 application are for an apparatus having the device claimed in the present application. The device claimed in both the present application and '976 have limitations of the semipermeable membrane including microfiltration, ultrafiltration, etc., making the claims of the present

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application obvious over that of the '976 application. Process limitations, such as "formed from reaction-bonded ceramic powder", in the claims of the present application would not make the present claims patentable over the claims of '976 application - "[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." In re *Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

(2) Claim 1 is provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-4, 14 and 16 of copending Application No. 10/676,671. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of '671 application recite the membrane as claimed in the present application. The product by process limitation of claim 1 would not make it non-obvious over the claims of application '671 because the structure recited is not patentably distinct. In re *Thorpe*.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

(3) Claim 1 is provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1 and 2 of copending Application No. 10/698,267. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of '267 application recite the membrane as claimed in the present application. The product by process limitation of claim 1 would not make it non-obvious over the claims of application '267 because the structure recited is not patentably distinct. In re Thorpe.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1 is rejected under 35 U.S.C. 102(b) as being anticipated by, or in the alternative, under 35 USC 103(a) as being obvious over, Goldsmith et al (US 5,114,581).

Claims 1: Goldsmith teaches a membrane device having a porous monolith support with a semipermeable membrane applied to the passage way walls as claimed. See abstract and figures. The process limitations in the claim would not make it patentable, unless applicant can show that the process imparts a structure that is new

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and unobvious when compared to the structure taught by the reference. In re Thorpe (see above).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 2 and 4-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goldsmith in view of Miyakawa (US 6,838,026).

Claim 12: Goldsmith teaches a method of making a microporous membrane by applying a semipermeable membrane over the walls of a monolith support – see abstract and column 2 lines 23-47.

Claim 12 differs from the teaching of Goldsmith in that Goldsmith does not provide the details of making the ceramic monolith support. Miyakawa teaches the process for making a monolith filter (abstract) by making a green body from a mixture of a ceramic particles (column 3 lines 6-32, and column 3 line 66 – column 4 line 14) and silicon nitride (column 3 lines 55-65), and sintering in an oxygen-free atmosphere (column 5 lines 12-15) as claimed. It would be obvious to one of ordinary skill in the art at the time of invention to use the teaching of Miyakawa in the teaching of Goldsmith to make the support for the membrane because Goldsmith does not teach a method for

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making the support, and because the Miyakawa filter has the advantages of high heat and corrosion resistance (column 1 lines 11-18).

Shrinkage during processing is inherent: process taught by Miyakawa is the same as what is recited in the claim.

Claim 2: microfiltration and the membrane – see abstract and col 2 lines 18-36 and 41-47 of Goldsmith.

Claims 4-6: reaction bond material is silicon nitride – see col 2 lines 48-53 of Goldsmith – silicon nitride and reactive inorganic binder. See example 9 and 13 in Miyakawa, wherein the porous monolith is formed from silicon and alumina.

Claims 7-11: silicon nitride, alumina, etc – see column 2 lines 37-53 of Goldsmith. Miyakawa teaches silicon nitride and alumina, etc for the monolith (column 3 lines 38-43, column 4 lines 1-21, and example 13). Formation of SiAlON is inherent – the reference teaches nitridation (in nitrogen atmosphere: column 5 lines 12-16) of aluminum and silicon containing precursors such as alumina and silicon nitride

3. Claims 2, 4-9 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goldsmith in view of Gadkaree (US 6,555,032).

Goldsmith teaches a method of making a microporous membrane by applying a semipermeable membrane over the walls of a monolith support – see abstract and column 2 lines 23-47. Microporous membrane – see abstract.

The claims differ from the teaching of Goldsmith in that Goldsmith does not provide the details of making the ceramic monolith support. Gadkaree teaches the

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process for making a monolith filter (abstract) by making a green body from a mixture of a ceramic particles (silicon nitride, silicon carbide and silicon), and sintering in an oxygen-free atmosphere as claimed. It would be obvious to one of ordinary skill in the art at the time of invention to use the teaching of Gadkaree in the teaching of Goldsmith to make the support for the membrane because Goldsmith does not teach a method for making the support, and because the Gadkaree filter has the advantages of good mechanical strength, uniform pore structure (column 1 lines 60-67).

Shrinkage during processing is inherent: process taught by Gadkaree is the same as what is recited in the claims.

### ***Response to Arguments***

Applicant's arguments filed 5/5/06 have been fully considered but they are not persuasive.

In response to the argument that the combination of Goldsmith and Miyakawa teaches carrying a membrane created in situ: Miyakawa teaches a process for making a porous unitary support as claimed; 'by reaction bonding' is inherent since the composition and methods steps are same as what is claimed. Less than 5% shrinkage is also inherent, unless applicant can prove otherwise. There is also no teaching away, since the reference(s) do not criticize or discredit anything. Goldsmith teaches forming the membrane by different methods, only one among them being by reaction bonding on the monolith. And Goldsmith's teaching of the membrane being formed by



reaction bonding on the support does not mean that the support cannot be made by reaction bonding.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Krishnan S. Menon whose telephone number is 571-272-1143. The examiner can normally be reached on 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda L. Walker can be reached on 571-272-1151. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Krishnan S. Menon  
Patent Examiner  
5/8/06